Trend Study 10-7-00

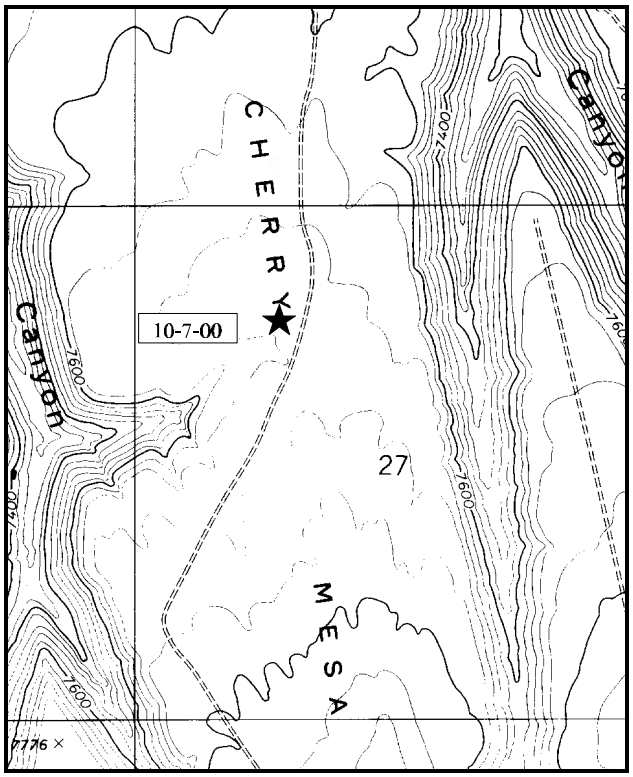
Study site name: Cherry Mesa . Range type: Chained, Seeded PJ .

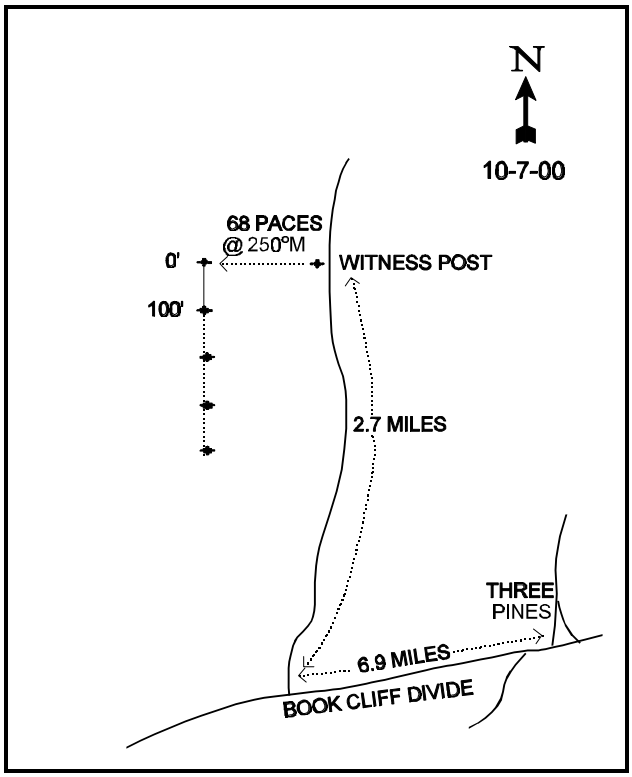
Compass bearing: frequency baseline 165°M .

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From the major intersection at Three Pines, continue southwest along the Book Cliff summit for 7.0 miles. Turn right off the main road onto the Cherry Mesa road. Go down through the spraying 2.7 miles to a witness post on the left side of the road. Stop, then walk to the west up the ridge, 68 paces at 250°M to the 0-foot baseline stake. It is marked by browse tag #9097. The rest of the 18" green fenceposts marking the study are found to the south at 100 foot intervals.




Map Name: Cedar Camp Canyon Diagrammatic Sketch

Township 16S , Range 22E , Section 27 UTM. 4361326.612 N, 630728.231 E

## DISCUSSION

### Trend Study No. 10-7 (16A-7)

The Cherry Mesa trend study samples an extensive pinyon-juniper chaining on a large block of state land. This site was re-read in 1997 as a special studies site to address perceived conflicts over elk and livestock use on the North Book Cliffs. Cattle graze this area on a rotational, deferred system from June through September. Water is a limiting factor on this mesa. There was fresh deer sign and also evidence of winter use during the 1988 reading. Elk were also seen in the general area in 1988. Pellet group frequency data from 1997 indicated 7 deer days use/acre (17ddu/ha), 29 elk days use/acre (72 edu/ha), and 21 cow days use/acre (52 cdu/ha). In 2000, pellet group transect data estimated 21 deer days use/acre (52 ddu/ha), 15 elk days use/acre (37 edu/ha), and 6 cow days use/acre (15 cdu/ha).

Elevation at the site is 7,650 feet with a northerly aspect and a gentle slope ranging from 3-7%. The fine-textured loam soil is moderately shallow with an average effective rooting depth of just over 11 inches. The surface horizon is extremely gravelly with many of the rocks located in the upper 6 inches. There is a fair amount of litter associated with the plants and also debris and litter left from the chaining. Many plants are slightly pedestalled and there has been obvious soil movement following high intensity rainstorms in the past. Average soil temperature is 55°F at an average depth of nearly 13 inches. Soils are high in organic matter (5.2%) and are neutral in reactivity (pH of 7.3).

Mountain big sagebrush is the dominant species on the site. Some of the sagebrush have characteristics of basin big sagebrush, indicating hybridization between the two subspecies. There were an estimated 1,866 mature and 4,400 young plants/acre in 1988. Percent decadency was low at 3% and vigor was generally good. Utilization of the sagebrush was light to moderate with a few individuals displaying heavy use (1%). In 1995, the population declined overall due to a reduced number of young being encountered (4,400 to 1,540). The number of mature plants actually increased to 2,620 plants/acre. Much of this change in population is associated with the greatly increased sample size and much better sampling distribution implemented in 1992 which provides considerably more reliable estimates for shrub densities. Percent decadency was less than 1% in 1995, with good vigor and light to moderate use. In 1997, sagebrush density was estimated to be slightly lower at 3,360 plants/acre. The age structure stayed relatively the same with about 2/3 of the population classified as mature and 1/3 classified as young. Utilization shifted to slightly more moderate use, yet the plants still exhibited good vigor. There was a large decrease in the number of seedlings encountered in 1997 compared to 1995 (760 to 80 plants/acre). In 2000, sagebrush provided 56% of the browse cover and appears to be slightly increasing with an estimated 4,240 plants/acre. It seems that many of the young plants sampled in 1995 and 1997 developed to mature plants as the mature age class increased. Although recruitment from young plants decreased in 2000, 16% of the population is still in the young age class (660 plants/acre) which is adequate. The level of use continues to slowly increase with 24% displaying moderate use, and an additional 17% showing heavy use in 2000. Seventeen percent of the population displayed poor vigor in 2000, and percent decadency increased from 1% to 10%. This level of decadency is still within a reasonable limit for sagebrush. Leader growth averaged approximately 5 inches in length in 2000, with abundant seed from last year being present throughout the population.

The small dwarf rabbitbrush is fairly numerous with an estimated 2,200 plants/acre in 1995, a similar amount (2,240 plants/acre) in 1997, increasing to 3,240 plants/acre in 2000. Use was mostly light in 1995 and 1997. However, use increased in 2000 with 21% of the population displaying moderate use, and an additional 10% showing heavy use. Utilization of this species appears to be primarily from rabbits. Percent decadency is high for dwarf rabbitbrush during the last 3 readings. Decadent plants made up 44% of the population in 1995, 50% in 1997, and 46% in 2000. Fifteen percent of the population displayed poor vigor in 2000.

Preferred species like bitterbrush and true mountain mahogany are scattered throughout the site in low numbers. Bitterbrush is currently estimated at 240 plants/acre. Use is moderate to heavy as evidenced by the "clubbed" appearance on the majority of the population. Even with this appearance, vigor remains good and no decadent plants have been sampled in any year. Average leader growth in 2000 was approximately 4 inches.

Pinyon and juniper trees are present, but at relatively low densities. Point-center quarter data from 2000 estimate 86 juniper and 41 pinyon trees/acre. About 20% of the pinyon and juniper trees consist of old trees that were tipped over during the chaining process but were not killed.

Herbaceous vegetation is sparse for a higher elevation chaining which provides little usable forage. Grass composition is mainly from native perennial species with the most abundant being thickspike wheatgrass, mutton bluegrass, a Carex, and blue grama. Grasses currently ('00) provide 22% of the total vegetative cover with sum of nested frequency remaining nearly stable since 1997. Forbs are diverse, but contribute only 2% average cover in 2000. Useful species are present in low numbers. The most abundant species includes pussy toes, desert phlox, long leaf phlox, and tapertip hawksbeard. Forb sum of nested frequency substantially decreased in 2000 due to drought conditions.

1988 APPARENT TREND ASSESSMENT

Although vegetative cover appears better on this site than at the previous site (#10-6), basal vegetative cover was estimated to be lower at 3.3%. Pavement (20%) constitutes a large portion of the highly variable surface terrain. Litter covers an additional 65% of the ground surface leaving 11% bare soil. The key browse species, mountain big sagebrush, is vigorous and moderately utilized. A majority of the population consists of young plants (68%) and seedlings are common. Trend appears up. The herbaceous understory is diverse and fairly abundant. The most common grasses include thickspike wheatgrass, a sedge, and mutton grass.

1995 TREND ASSESSMENT

Basic ground cover characteristics have changed somewhat since 1988. Litter cover has declined from 65% to 41%. This is likely a reflection of the effects of extended drought combined with the decomposition of litter from the original chaining. Percent bare ground declined slightly but not enough to warrant an improving trend. In addition, grasses and forbs contribute 37% of the total vegetative cover. Therefore, trend for soil is considered stable. Trend for mountain big sagebrush is up slightly even though total density has declined. However, with no evidence of die-off, the change is more reflective of the much larger sample size giving more accurate population estimates for shrub species. The number of mature plants has increased from 1,866 plants/acre to 2,620. The proportion of young plants declined from 68% to 37% but this is still high. Percent decadence is low and average height/crown measurements have increased considerably. However, this upward trend in the number of mature plants and increases in size could have a depressing effect on the herbaceous understory. Trend for the herbaceous understory is stable to slightly declining, but composition has changed since the last reading. Sum of nested frequency for grasses declined considerably while that of forbs increased. All perennial grasses encountered in 1988 have declined significantly.

TREND ASSESSMENT
soil - stable (3)
browse - up slightly for sagebrush (4)
herbaceous understory - stable to slightly declining; down for grasses and up for forbs (2)

1997 TREND ASSESSMENT

Total vegetative cover has decreased to 21% since 1995, when it was estimated at 32%. In contrast, pavement cover has increased to 28% since 1995 when it was estimated at 18%. Percent bare ground has also increased from 9% in 1995 to 15% in 1997. Cover is still adequate to protect from erosion, although there is some evidence of recent soil movement. Soil trend is stable for now. Mountain big sagebrush density continues to decline with 3,360 plants/acre estimated in 1997. Percent decadence is still low with few dead plants in the area. Browse trend is stable for now, but should continue to be monitored. Sum of nested frequency for grasses and forbs has decreased since 1995. All grasses have declined since 1995 except for thickspike wheatgrass which has increased slightly. Trend for herbaceous understory is slightly downward.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - slightly downward (2)

2000 TREND ASSESSMENT

Trend for soil is slightly down. Ground cover characteristics are mixed with vegetation and bare soil both increasing, litter cover remaining stable, and pavement decreasing. The ratio of protective ground cover to bare soil decreased in 2000 but may still be adequate to limit high erosive events, and erosion appears minimal at the present time. Trend for browse is stable. The key species, mountain big sagebrush, has increased in density, and the population still has moderate recruitment from the young age class (16%). Use has increased slightly since 1997, with moderate use remaining the same, but heavy use increasing from 3% to 17% of the population. Percent decadency increased from 1% to 10%, however, this is within the reasonable range for sagebrush. Poor vigor increased to 17% of the population, due most likely to the drought experienced in spring and summer of 2000. Trend for the herbaceous understory is slightly down due to drought. With the dry conditions of 2000, sum of nested frequency decreased for perennial grasses and forbs. Herbaceous species provide little usable forage compared to other chained sites at this elevation.

TREND ASSESSMENT
soil - slightly down (2)
browse - stable (3)
herbaceous understory - slightly down due to drought (2)

HERBACEOUS TRENDS --
Herd unit 10 , Study no: 7

| Type | Species | Nested Frequency | | | | Quadrat Frequency | | | | Average Cover % | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | '88 | '95 | '97 | '00 | '88 | '95 | '97 | '00 | '95 | '97 | '00 |
| G | Agropyron dasystachyum | $_{b}$180 | $_{b}$158 | $_{b}$179 | $_{a}$86 | 69 | 54 | 67 | 38 | 1.16 | 1.32 | .52 |
| G | Andropogon scoparius | - | - | 7 | - | - | - | 3 | - | - | .01 | - |
| G | Bouteloua gracilis | 74 | 54 | 42 | 50 | 27 | 22 | 18 | 17 | .83 | .39 | .72 |
| G | Bromus tectorum (a) | - | 2 | 3 | - | - | 1 | 1 | - | .00 | .00 | - |
| G | Carex spp. | $_{b}$139 | $_{a}$83 | $_{a}$66 | $_{b}$148 | 52 | 28 | 23 | 50 | .39 | .48 | 2.16 |
| G | Koeleria cristata | $_{a}$- | $_{c}$80 | $_{b}$37 | $_{a}$3 | - | 31 | 15 | 1 | 1.11 | .58 | .03 |
| G | Oryzopsis hymenoides | $_{c}$33 | $_{b}$11 | $_{ab}$2 | $_{a}$- | 15 | 4 | 1 | - | .07 | .03 | - |
| G | Poa fendleriana | $_{b}$116 | $_{a}$67 | $_{bc}$131 | $_{c}$177 | 51 | 27 | 54 | 67 | 1.71 | 1.29 | 3.17 |
| G | Poa secunda | $_{a}$- | $_{a}$- | $_{b}$8 | $_{c}$1 | - | - | 3 | 1 | - | .21 | .00 |
| G | Sitanion hystrix | $_{b}$82 | $_{a}$16 | $_{a}$11 | $_{a}$1 | 42 | 7 | 5 | 1 | .07 | .05 | .03 |
| G | Stipa comata | $_{b}$79 | $_{a}$1 | $_{a}$6 | $_{a}$3 | 31 | 1 | 3 | 2 | .00 | .01 | .03 |
| Total for Annual Grasses | | 0 | 2 | 3 | 0 | 0 | 1 | 1 | 0 | 0.00 | 0.00 | 0 |
| Total for Perennial Grasses | | 703 | 470 | 489 | 469 | 287 | 174 | 192 | 177 | 5.35 | 4.40 | 6.68 |
| Total for Grasses | | 703 | 472 | 492 | 469 | 287 | 175 | 193 | 177 | 5.36 | 4.40 | 6.68 |
| F | Antennaria rosea | $_{a}$11 | $_{a}$23 | $_{ab}$30 | $_{b}$40 | 6 | 10 | 14 | 20 | .10 | .45 | .39 |
| F | Androsace septentrionalis (a) | - | $_{a}$- | $_{c}$33 | $_{b}$6 | - | - | 16 | 3 | - | .08 | .04 |
| F | Arabis spp. | $_{b}$29 | $_{a}$1 | $_{a}$4 | $_{a}$- | 12 | 1 | 2 | - | .03 | .01 | - |
| F | Arenaria kingii | - | - | 4 | - | - | - | 2 | - | - | .01 | - |
| F | Astragalus argophyllus | $_{a}$3 | $_{b}$32 | $_{a}$- | $_{a}$5 | 1 | 17 | - | 3 | .70 | - | .07 |
| F | Aster spp. | 12 | 3 | 1 | 5 | 4 | 1 | 1 | 3 | .00 | .00 | .04 |
| F | Astragalus spp. | $_{a}$- | $_{a}$- | $_{b}$13 | $_{a}$3 | - | - | 8 | 1 | - | .09 | .00 |
| F | Calochortus flexuosus | - | - | 3 | - | - | - | 1 | - | - | .00 | - |
| F | Castilleja flava | 9 | 12 | 9 | 4 | 5 | 7 | 6 | 2 | .16 | .08 | .03 |
| F | Chaenactis douglasii | $_{c}$51 | $_{b}$20 | $_{b}$10 | $_{a}$- | 25 | 8 | 4 | - | .04 | .02 | - |
| F | Comandra pallida | 36 | 53 | 38 | 36 | 15 | 22 | 19 | 16 | .38 | .22 | .33 |
| F | Crepis acuminata | $_{a}$- | $_{bc}$53 | $_{c}$59 | $_{b}$35 | - | 24 | 31 | 20 | .30 | .53 | .22 |
| F | Cryptantha spp. | 3 | 6 | 2 | 1 | 1 | 4 | 1 | 1 | .04 | .00 | .00 |
| F | Delphinium bicolor | - | 2 | - | - | - | 2 | - | - | .01 | - | - |
| F | Eriogonum alatum | - | - | - | 2 | - | - | - | 2 | - | - | .03 |
| F | Erigeron eatonii | - | - | - | 3 | - | - | - | 2 | - | - | .06 |
| F | Erigeron spp. | $_{b}$47 | $_{ab}$37 | $_{ab}$21 | $_{a}$23 | 20 | 20 | 13 | 9 | .30 | .14 | .07 |
| F | Eriogonum umbellatum | $_{a}$19 | $_{a}$15 | $_{a}$14 | $_{b}$34 | 8 | 6 | 8 | 18 | .22 | .16 | .24 |
| F | Gayophytum ramosissimum (a) | - | $_{b}$54 | $_{a}$- | $_{a}$2 | - | 21 | - | 1 | .42 | - | .00 |
| F | Gilia spp. (a) | - | $_{b}$111 | $_{a}$- | $_{a}$3 | - | 40 | - | 2 | .27 | - | .01 |
| F | Lappula occidentalis (a) | - | $_{b}$8 | $_{b}$10 | $_{a}$- | - | 4 | 5 | - | .02 | .02 | - |
| F | Lesquerella spp. | $_{b}$50 | $_{ab}$41 | $_{ab}$35 | $_{a}$18 | 24 | 16 | 16 | 10 | .19 | .22 | .10 |

| Type | Species | Nested Frequency | | | | Quadrat Frequency | | | | Average Cover % | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | '88 | '95 | '97 | '00 | '88 | '95 | '97 | '00 | '95 | '97 | '00 |
| F | Linum lewisii | 2 | - | 2 | 5 | 1 | - | 1 | 2 | - | .00 | .01 |
| F | Machaeranthera grindelioides | 15 | 17 | 12 | 6 | 8 | 7 | 6 | 4 | .37 | .10 | .04 |
| F | Orthocarpus purpureo-albus (a) | 3 | - | - | - | 1 | - | - | - | - | - | - |
| F | Penstemon caespitosus | $_{a}$3 | $_{b}$26 | $_{ab}$11 | $_{a}$1 | 2 | 10 | 6 | 1 | .59 | .19 | .00 |
| F | Pedicularis centranthera | - | - | 1 | - | - | - | 1 | - | - | .00 | - |
| F | Penstemon pachyphyllus | - | 1 | 2 | 1 | - | 1 | 1 | 1 | .00 | .00 | .00 |
| F | Phlox austromontana | $_{a}$- | $_{b}$26 | $_{b}$26 | $_{b}$23 | - | 10 | 10 | 10 | .29 | .32 | .41 |
| F | Phlox longifolia | $_{a}$12 | $_{c}$104 | $_{b}$69 | $_{a}$37 | 6 | 43 | 35 | 17 | .34 | .25 | .11 |
| F | Polygonum douglasii (a) | - | $_{b}$91 | $_{b}$62 | $_{a}$1 | - | 36 | 28 | 1 | .25 | .14 | .00 |
| F | Senecio multilobatus | 3 | 3 | - | - | 2 | 2 | - | - | .01 | - | - |
| F | Tragopogon dubius | 2 | - | - | - | 2 | - | - | - | - | - | - |
| Total for Annual Forbs | | 3 | 264 | 105 | 12 | 1 | 101 | 49 | 7 | 0.97 | 0.24 | 0.06 |
| Total for Perennial Forbs | | 307 | 475 | 366 | 282 | 142 | 211 | 186 | 142 | 4.13 | 2.88 | 2.20 |
| Total for Forbs | | 310 | 739 | 471 | 294 | 143 | 312 | 235 | 149 | 5.10 | 3.13 | 2.27 |

Values with different subscript letters are significantly different at % = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 10 , Study no: 7

| Type | Species | Strip Frequency | | | Average Cover % | | |
|---|---|---|---|---|---|---|---|
| | | '95 | '97 | '00 | '95 | '97 | '00 |
| B | Artemisia tridentata vaseyana | 77 | 81 | 80 | 9.96 | 8.26 | 11.78 |
| B | Cercocarpus montanus | 1 | 1 | 3 | .18 | .00 | .38 |
| B | Chrysothamnus depressus | 35 | 26 | 39 | 1.00 | .84 | .80 |
| B | Chrysothamnus viscidiflorus viscidiflorus | 0 | 10 | 8 | - | .42 | .00 |
| B | Gutierrezia sarothrae | 7 | 9 | 1 | .18 | .08 | .00 |
| B | Juniperus osteosperma | 0 | 6 | 6 | .93 | 1.48 | 2.32 |
| B | Opuntia spp. | 2 | 2 | 6 | .00 | - | - |
| B | Pinus edulis | 0 | 4 | 4 | 3.03 | 3.23 | 4.15 |
| B | Purshia tridentata | 5 | 11 | 8 | .03 | .12 | .15 |
| B | Symphoricarpos oreophilus | 20 | 22 | 25 | 3.01 | 1.63 | 1.62 |
| Total for Browse | | 147 | 172 | 180 | 18.37 | 16.07 | 21.22 |

CANOPY COVER --
Herd unit 10 , Study no: 7

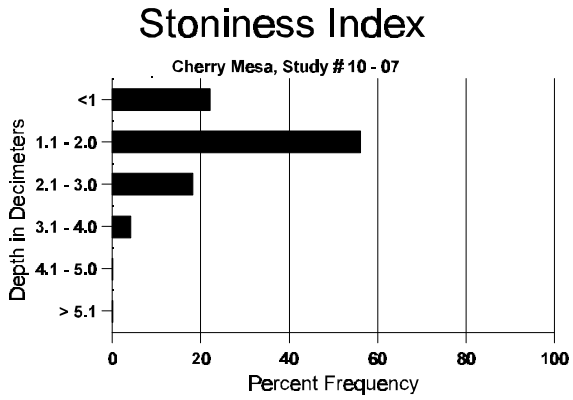
| Species | Percent Cover '00 |
|---|---|
| Pinus edulis | 6 |

BASIC COVER --
Herd unit 10 , Study no: 7

| Cover Type | Nested Frequency | | | | Average Cover % | | | |
|---|---|---|---|---|---|---|---|---|
| | '88 | '95 | '97 | '00 | '88 | '95 | '97 | '00 |
| Vegetation | - | 348 | 306 | 323 | 3.25 | 31.70 | 21.11 | 29.38 |
| Rock | - | 57 | 12 | 3 | 0 | .88 | .16 | .00 |
| Pavement | - | 264 | 291 | 278 | 20.00 | 18.21 | 27.87 | 18.42 |
| Litter | - | 386 | 392 | 367 | 65.25 | 41.33 | 41.40 | 41.26 |
| Cryptogams | - | 24 | 27 | 12 | .25 | .20 | 1.19 | .42 |
| Bare Ground | - | 249 | 232 | 269 | 11.25 | 9.14 | 15.18 | 25.53 |

SOIL ANALYSIS DATA --
Herd Unit 10, Study # 7, Study Name: Cherry Mesa

| Effective rooting depth (inches) | Temp °F (depth) | pH | %sand | %silt | %clay | %0M | PPM P | PPM K | dS/m |
|---|---|---|---|---|---|---|---|---|---|
| 11.15 | 55.0 (12.83) | 6.8 | 48.0 | 30.0 | 22.0 | 4.1 | 9.4 | 89.6 | 0.8 |



PELLET GROUP FREQUENCY --
Herd unit 10 , Study no: 7

| Type | Quadray Frequency | | | Pellet Transect | | | |
|---|---|---|---|---|---|---|---|
| | | | | Pellet Groups per Acre | | Days Use per Acre (ha) | |
| | '95 | '97 | '00 | '97 | '00 | '97 | '00 |
| Rabbit | 12 | 11 | 48 | 44 | 809 | N/A | N/A |
| Elk | 4 | 8 | 9 | 382 | 22 | 29 (72) | 15 (37) |
| Deer | 4 | 7 | 10 | 96 | 32 | 7 (17) | 21 (53) |
| Cattle | 1 | 7 | 2 | 252 | 70 | 21 (52) | 6 (15) |

BROWSE CHARACTERISTICS --
Herd unit 10 , Study no: 7

| AGE | YR | Form Class (No. of Plants) | | | | | | | | | Vigor Class | | | | Plants Per Acre | Average (inches) | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | | Ht. | Cr. | |
| Artemisia tridentata vaseyana | | | | | | | | | | | | | | | | | | |
| S | 88 | 9 | - | - | 2 | - | - | 1 | - | - | 12 | - | - | - | 800 | | | 12 |
| | 95 | 38 | - | - | - | - | - | - | - | - | 38 | - | - | - | 760 | | | 38 |
| | 97 | 4 | - | - | - | - | - | - | - | - | 4 | - | - | - | 80 | | | 4 |
| | 00 | 3 | - | - | - | - | - | - | - | - | 3 | - | - | - | 60 | | | 3 |
| Y | 88 | 61 | 4 | - | 1 | - | - | - | - | - | 66 | - | - | - | 4400 | | | 66 |
| | 95 | 76 | - | - | 1 | - | - | - | - | - | 77 | - | - | - | 1540 | | | 77 |
| | 97 | 55 | 1 | - | - | - | - | - | - | - | 56 | - | - | - | 1120 | | | 56 |
| | 00 | 28 | 2 | 1 | 2 | - | - | - | - | - | 33 | - | - | - | 660 | | | 33 |
| M | 88 | 14 | 13 | 1 | - | - | - | - | - | - | 26 | 1 | 1 | - | 1866 | 21 | 19 | 28 |
| | 95 | 121 | 5 | 2 | 3 | - | - | - | - | - | 131 | - | - | - | 2620 | 26 | 31 | 131 |
| | 97 | 67 | 35 | 5 | 2 | 1 | - | - | - | - | 105 | - | 5 | - | 2200 | 28 | 34 | 110 |
| | 00 | 78 | 40 | 18 | 2 | 4 | 15 | 1 | - | - | 131 | - | 27 | - | 3160 | 27 | 31 | 158 |
| D | 88 | 3 | - | - | - | - | - | - | - | - | 2 | 1 | - | - | 200 | | | 3 |
| | 95 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| | 97 | 1 | 1 | - | - | - | - | - | - | - | 1 | - | - | 1 | 40 | | | 2 |
| | 00 | 14 | 4 | 3 | - | - | - | - | - | - | 13 | - | 1 | 7 | 420 | | | 21 |
| X | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 20 | | | 1 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 60 | | | 3 |
| | 00 | - | - | - | - | - | - | - | - | - | - | - | - | - | 160 | | | 8 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '88 | 18% | 01% | 01% | -35% |
| '95 | 02% | .95% | 00% | -20% |
| '97 | 23% | 03% | 04% | +21% |
| '00 | 24% | 17% | 17% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| '88 | 6466 | Dec: | 3% |
| '95 | 4180 | | 0% |
| '97 | 3360 | | 1% |
| '00 | 4240 | | 10% |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cercocarpus montanus | | | | | | | | | | | | | | | | | | |
| Y | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 95 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 00 | 1 | - | - | 1 | - | - | - | - | - | 2 | - | - | - | 40 | | | 2 |
| M | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 35 | 27 | 0 |
| | 97 | - | - | - | 1 | - | - | - | - | - | 1 | - | - | - | 20 | 22 | 14 | 1 |
| | 00 | - | - | - | - | - | 1 | - | - | - | 1 | - | - | - | 20 | 33 | 38 | 1 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '88 | 00% | 00% | 00% | |
| '95 | 00% | 00% | 00% | + 0% |
| '97 | 00% | 00% | 00% | +67% |
| '00 | 00% | 33% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| '88 | 0 | Dec: | | - |
| '95 | 20 | | | - |
| '97 | 20 | | | - |
| '00 | 60 | | | - |

| Chrysothamnus depressus | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | 88 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 66 | | | 1 |
| | 95 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 00 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| Y | 88 | 6 | 1 | - | 1 | - | - | - | - | - | 8 | - | - | - | 533 | | | 8 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 00 | 11 | - | 1 | - | - | - | - | - | - | 12 | - | - | - | 240 | | | 12 |
| M | 88 | 45 | 16 | - | 1 | - | - | 2 | - | - | 64 | - | - | - | 4266 | 6 | 8 | 64 |
| | 95 | 61 | 1 | - | - | - | - | - | - | - | 62 | - | - | - | 1240 | 6 | 12 | 62 |
| | 97 | 55 | 1 | - | - | - | - | - | - | - | 56 | - | - | - | 1120 | 5 | 10 | 56 |
| | 00 | 49 | 13 | 5 | 1 | 4 | 2 | - | - | 1 | 63 | - | - | 12 | 1500 | 3 | 5 | 75 |
| D | 88 | 6 | 1 | - | - | - | - | - | - | - | 6 | - | - | 1 | 466 | | | 7 |
| | 95 | 47 | 1 | - | - | - | - | - | - | - | 48 | - | - | - | 960 | | | 48 |
| | 97 | 55 | 1 | - | - | - | - | - | - | - | 56 | - | - | - | 1120 | | | 56 |
| | 00 | 49 | 13 | 5 | 1 | 4 | 2 | - | - | 1 | 63 | - | - | 12 | 1500 | | | 75 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '88 | 23% | 00% | 01% | -58% |
| '95 | 02% | 00% | 00% | + 2% |
| '97 | 02% | 00% | 00% | +31% |
| '00 | 21% | 10% | 15% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | |
|---|---|---|---|
| '88 | 5265 | Dec: | 9% |
| '95 | 2200 | | 44% |
| '97 | 2240 | | 50% |
| '00 | 3240 | | 46% |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chrysothamnus viscidiflorus viscidiflorus | | | | | | | | | | | | | | | | | | |
| Y | 88 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 133 | | | 2 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 00 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | | | 2 |
| M | 88 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 133 | 7 | 8 | 2 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 17 | 25 | 0 |
| | 97 | 17 | - | - | - | - | - | - | - | - | 17 | - | - | - | 340 | 10 | 12 | 17 |
| | 00 | 4 | 9 | - | - | - | - | - | - | - | 13 | - | - | - | 260 | 11 | 8 | 13 |
| D | 88 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 133 | | | 2 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 00 | 1 | - | - | - | - | - | - | - | - | - | - | - | 1 | 20 | | | 1 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '88 | 00% | 00% | 00% | |
| '95 | 00% | 00% | 00% | |
| '97 | 00% | 00% | 00% | - 6% |
| '00 | 56% | 00% | 06% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '88 | 399 | Dec: | 33% |
| | '95 | 0 | | 0% |
| | '97 | 340 | | 0% |
| | '00 | 320 | | 6% |

| Gutierrezia sarothrae | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Y | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 00 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| M | 88 | 4 | - | - | - | - | - | - | - | - | 4 | - | - | - | 266 | 6 | 7 | 4 |
| | 95 | 10 | - | - | - | - | - | - | - | - | 10 | - | - | - | 200 | 7 | 12 | 10 |
| | 97 | 11 | - | - | - | - | - | - | - | - | 11 | - | - | - | 220 | 6 | 7 | 11 |
| | 00 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '88 | 00% | 00% | 00% | -25% |
| '95 | 00% | 00% | 00% | + 9% |
| '97 | 00% | 00% | 00% | -91% |
| '00 | 00% | 00% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '88 | 266 | Dec: | - |
| | '95 | 200 | | - |
| | '97 | 220 | | - |
| | '00 | 20 | | - |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Juniperus osteosperma | | | | | | | | | | | | | | | | | | |
| S | 88 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 66 | | | 1 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 00 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| Y | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| | 00 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| M | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 97 | 5 | - | - | - | - | - | - | - | - | 5 | - | - | - | 100 | - | - | 5 |
| | 00 | 5 | - | - | - | - | - | 1 | - | - | 5 | - | 1 | - | 120 | - | - | 6 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '88 | 00% | 00% | 00% | |
| '95 | 00% | 00% | 00% | |
| '97 | 00% | 00% | 00% | + 0% |
| '00 | 00% | 00% | 17% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '88 | 0 | Dec: | - |
| | '95 | 0 | | - |
| | '97 | 120 | | - |
| | '00 | 120 | | - |

| Opuntia spp. | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Y | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 95 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | | | 2 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 00 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| M | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 1 | 6 | 0 |
| | 97 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | 4 | 8 | 2 |
| | 00 | 5 | - | - | - | - | - | - | - | - | 5 | - | - | - | 100 | 4 | 11 | 5 |
| D | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 00 | 1 | - | - | - | - | - | - | - | - | - | - | 1 | - | 20 | | | 1 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '88 | 00% | 00% | 00% | |
| '95 | 00% | 00% | 00% | + 0% |
| '97 | 00% | 00% | 00% | +71% |
| '00 | 00% | 00% | 14% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '88 | 0 | Dec: | 0% |
| | '95 | 40 | | 0% |
| | '97 | 40 | | 0% |
| | '00 | 140 | | 14% |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pinus edulis | | | | | | | | | | | | | | | | | | |
| Y | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 00 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| M | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 97 | 4 | - | - | - | - | - | - | - | - | 4 | - | - | - | 80 | - | - | 4 |
| | 00 | 2 | 1 | - | - | - | - | 1 | - | - | 4 | - | - | - | 80 | - | - | 4 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '88 | 00% | 00% | 00% | |
| '95 | 00% | 00% | 00% | |
| '97 | 00% | 00% | 00% | +20% |
| '00 | 20% | 00% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '88 | 0 | Dec: | - |
| | '95 | 0 | | - |
| | '97 | 80 | | - |
| | '00 | 100 | | - |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Purshia tridentata | | | | | | | | | | | | | | | | | | |
| Y | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 3 | - | - | - | - | - | - | - | - | 3 | - | - | - | 60 | | | 3 |
| | 00 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| M | 88 | - | 3 | 3 | - | - | - | - | - | - | 6 | - | - | - | 400 | 9 | 26 | 6 |
| | 95 | 5 | - | - | - | - | - | - | - | - | 5 | - | - | - | 100 | 13 | 34 | 5 |
| | 97 | 3 | 3 | 2 | 1 | 2 | - | - | - | - | 11 | - | - | - | 220 | 14 | 27 | 11 |
| | 00 | 5 | 1 | 1 | - | 3 | 2 | - | - | - | 12 | - | - | - | 240 | 12 | 33 | 12 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '88 | 50% | 50% | 00% | -75% |
| '95 | 00% | 00% | 00% | +64% |
| '97 | 36% | 14% | 00% | -14% |
| '00 | 33% | 25% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '88 | 400 | Dec: | - |
| | '95 | 100 | | - |
| | '97 | 280 | | - |
| | '00 | 240 | | - |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Symphoricarpos oreophilus | | | | | | | | | | | | | | | | | | |
| S | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | | | 2 |
| | 00 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| Y | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 95 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | | | 2 |
| | 97 | 5 | - | - | 3 | - | - | - | - | - | 8 | - | - | - | 160 | | | 8 |
| | 00 | 11 | 1 | - | 3 | - | - | 6 | - | - | 21 | - | - | - | 420 | | | 21 |
| M | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 95 | 20 | 2 | - | 1 | - | - | - | - | - | 23 | - | - | - | 460 | 20 | 34 | 23 |
| | 97 | 16 | 7 | 2 | 2 | - | - | - | - | - | 27 | - | - | - | 540 | 15 | 27 | 27 |
| | 00 | 16 | 2 | - | 3 | 3 | 1 | 4 | - | - | 29 | - | - | - | 580 | 17 | 27 | 29 |
| D | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 95 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 00 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | | | 2 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '88 | 00% | 00% | 00% | |
| '95 | 08% | 00% | 00% | +29% |
| '97 | 20% | 06% | 00% | +33% |
| '00 | 12% | 02% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '88 | 0 | Dec: | 0% |
| | '95 | 500 | | 0% |
| | '97 | 700 | | 0% |
| | '00 | 1040 | | 4% |